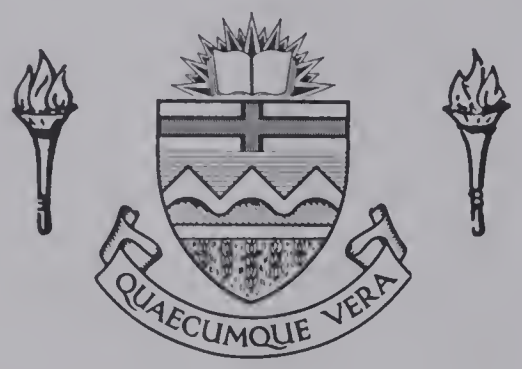

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ATTITUDES TOWARD INNOVATION OF HIGH SCHOOL PRINCIPALS IN VICTORIA, AUSTRALIA

by

© FRANK COULTER

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Attitudes Toward Innovation of High School Principals in Victoria, Australia" submitted by Frank Coulter in partial fulfillment of the requirements for the degree of Master of Education.

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ABSTRACT

The purpose of this study was to determine whether attitudes toward innovation were associated with selected personal, experience and academic characteristics of high school principals, and with the innovativeness of their schools.

Principals of government high schools in Victoria, Australia, with classes from grade seven to twelve, were invited to participate in the study. The population was delimited to exclude persons with fewer than two years experience as principals. One hundred and twenty nine principals, comprising seventy-eight per cent of the population, participated in the study.

Ten research hypotheses were established on the basis of related theory. These hypotheses postulated that principals' attitudes toward innovation were associated with age, cosmopoliteness, mental rigidity, amount and recency of formal education, length of experience as a principal, length of tenure in present position, innovativeness of the principal's school, the sources from which the principal derived information about innovations, and the extent to which the principal was engaged in classroom teaching.

Analysis of variance showed that principals' attitudes toward innovation were associated with age, cosmopoliteness, mental rigidity, recency of formal education, length of tenure in present position, and the innovativeness of the principal's school.

Newman-Keuls tests revealed that principals with the most receptive attitudes toward innovation were younger, more cosmopolite,

and more mentally flexible than their fellow principals; they were also recently appointed to their present positions, principals of innovative schools, and had undertaken formal education comparatively recently.

Multiple regression analysis indicated that the best predictors of principals' attitudes toward innovation were, in order, cosmopoliteness, mental rigidity, length of tenure in present position, recency of formal education, age, and the innovativeness of the principal's school. Cosmopoliteness accounted for 48.49 per cent of the variance in principals' attitudes; the other five significant predictors together accounted for 9.73 per cent of the variance not accounted for by cosmopoliteness.

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THE PROBLEM

I. INTRODUCTION

> The history of education is the story of an institution that has responded slowly and erratically to social pressure. In our time, its survival will perhaps be dependent upon whether the educational process can change rapidly, in the right way, and in the right direction.[1]

A more recent chapter in the history of education is one which relates to an acceleration of the tempo of change in schools. The institution is now responding more rapidly to the many and varied forces arising from the society it serves. The expanding nature of the world of knowledge, the impact of new technologies, and the desire for increased social mobility are but a few of the forces to which the schools have responded.

There are indications that the rate of educational change is increasing and that revision of existing practices will continue as knowledge increases, methodology improves and technology advances.[2] Amid this climate of change the school principal is confronted with the problem of maintaining a cohesive, smoothly operating organization and, at the same time, introducing new ideas and practices into his school. The primary purpose of this research was to determine the school

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[1] Jean Dresden Grambs, Schools, Scholars, and Society, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), p. 2.

[2] E. A. Holdaway and J. E. Seger, "Change and the Principal," The Canadian Administrator, 4 (January, 1967), 13-16.

principal's attitudes toward this increasing rate of educational change so that the relationship between these attitudes and a number of variables related to the principal's school, his experience, and personal characteristics could be investigated.

II. STATEMENT OF THE PROBLEM AND SUB-PROBLEMS

The Problem

Is the high school principal's attitude toward innovation associated with (1) the number of innovations which have been adopted in his school and (2) selected personal and experience characteristics?

Sub-problems

1. Is the high school principal's attitude toward innovation associated with the following variables?

(i) The number of innovations which have been adopted in his school.

(ii) Personal characteristics--- age, mental rigidity, and cosmopoliteness.

(iii) Academic and professional characteristics--- amount of tertiary education, and recency of formal education.

(iv) Experience variables--- total number of years as a principal, length of tenure in present position, the extent to which he is still engaged in classroom teaching.

2. (i) What are the major sources from which the principal draws his information about innovations?

(ii) Is the principal's attitude toward innovation associated with the sources from which he draws his information about innovations?

III. DEFINITION OF TERMS

Innovation

Miles has defined an innovation as "a deliberate novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system."[3] Throughout this study the terms "innovation" and "change" have been used interchangeably. It was assumed that a planned change, like an innovation, is perceived to lead to more efficacious goal achievement.

Furthermore an innovation need not be objectively new, but must be perceived as new by the individual. As Rogers has observed:

> It really matters little as far as human behavior is concerned, whether or not the idea is objectively new as measured by the amount of time elapsed since its first use or discovery. It is the newness of the idea to the individual that determines his reaction to it.[4]

Innovativeness

Innovativeness is "the degree to which an individual is relatively earlier in adopting new ideas than the other members of his social system."[5]

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[3] Matthew B. Miles (ed.), Innovation in Education, (New York: Bureau of Publications, Teachers College, Columbia University, 1964) p. 14.

[4] Everett M. Rogers, Diffusion of Innovations, (New York: The Free Press of Glencoe, 1964), p. 14.

[5] Ibid., p. 20.

An Attitude

An attitude is "a relatively permanent disposition to evaluate some entity negatively or positively."[6]

Adoption

Adoption refers to "a decision to continue full use of an innovation."[7]

Cosmopoliteness

This term refers to "the degree to which an individual's orientation is external to a particular social system."[8]

Mental Rigidity

Mental rigidity refers to the individual's resistance to change of single beliefs, or sets of habits.

Government Secondary School

In this study a government secondary school is non-sectarian, wholly supported by public funds, and contains classrooms from grade seven to twelve.

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[6]H. A. Murray, "Toward a Classification of Interactions," T. Parsons and E. A. Shils (eds.), Toward a General Theory of Action, (Cambridge, Massachusetts: Harvard University Press, 1962), p. 453.

[7]Everett M. Rogers, op. cit., p. 17.

[8]Ibid.

Tertiary Education

Tertiary education refers to post-secondary school education and includes training in universities, teacher training colleges, senior technical colleges and similar institutions.

IV. THE IMPORTANCE OF THE STUDY

A number of writers have described what they regard as the most appropriate role for the school principal in the process of educational change. Downey's concept of a statesmanlike school principal is one of

> . . . an agent for change, of experimentation and improvement. He cultivates a keen sensitivity for change; he knows exactly when to introduce proposals for change, he knows how to overcome organizational resistance to change.[9]

Purvis[10] sees the principal as enjoying a greater opportunity than any other person in the school system for bringing about change. Ziolkowski[11] suggests that as a change agent within the school the principal may induce a climate which will enable staff to accept and even to initiate change.

Each of the above comments is couched in terms of what ought to be the principal's role in the change process. There is, however, some

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[9] L. W. Downey, The Secondary Phase of Education, (New York: Blaisdell, 1965), p. 223.

[10] N. M. Purvis, "The Use of Staff Projects in Inservice Education," The Skills of an Effective Principal, L. W. Downey (ed.), (Edmonton: The Policy Committee, Leadership Course for School Principals, 1961), pp. 65-81.

[11] E. H. Ziolkowski, "Practices in the Supervision of Instruction," The Canadian Administrator, 5 (October, 1965), 1-4.

evidence which suggests that the principal is not performing such a role. Griffiths,[12] as a result of studying over two hundred elementary school principals in a simulated administrative situation called the Whitman School, concluded that the elementary school principal seldom introduces a new idea into the school system. However, the extremely artificial circumstances under which the study was carried out casts some doubt upon Griffiths's conclusions.

The findings of a recent study carried out by Wiens[13] are more convincing. Wiens found that the attitudes to change held by principals did not correlate significantly with the amount of change which had been implemented in their schools. Wiens therefore concluded that principals have little influence upon the adoption of innovations in their schools. As the implications of this conclusion are important, it was felt that they merited testing in another situation, and that if the study revealed a similar state of affairs in Victoria, where the principal is perhaps the major administrative link between the central authority and the classroom, there would be good reason for the Department of Education to implement in-service training programs for its principals. Such programs might be directed toward fostering those skills and attitudes

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[12]Daniel E. Griffiths, Leadership for Educational Change, Albany, New York: Council for Administrative Leadership, 1965.

[13]John Wiens, "Attitudes, Influence and Innovativeness: An Analysis of Factors Related to Innovativeness in Educational Organizations," (unpublished Doctoral dissertation, University of Alberta, Edmonton, 1967).

essential for coping with problems of educational change, and toward improving the principals' perceptions of their own roles in the change process.

Finally, the researcher felt that if significant relationships were found to exist between the principals' attitudes toward innovation, and personal characteristics which the literature has associated with innovativeness, the instrument used to measure attitudes to change might be accepted as a useful means of identifying principals who are receptive to change. Principals who display attitudes most receptive to change may then be more readily identified for purposes of initiating change.

V. THE EDUCATIONAL SETTING OF THE STUDY

The government school system of Victoria is administered centrally from the state capital. Whilst a system of local government has been established and is well-developed, it is restricted to local services such as health inspection, the maintenance of roads, and the regulation of property matters. Local government authorities bear no responsibility for the provision of educational services; this responsibility rests with the state and most authorities are content to let it remain there. In no sense, therefore, is there a system of local school government such as that which exists in North America. Matters relating to general curriculum policy, the conduct of schools, recruitment and placement of staff are dealt with by the central authority.

Courses and examinations for grades eleven and twelve are controlled by another central authority, the Victorian Universities and

Schools Examinations Board, which is a statutory body of the three Victorian universities. However, at grade eleven schools may apply to the Examinations Board for approval to conduct internal examinations; such approval may be granted upon the recommendation of Department of Education inspectors, who act as agents of the Examinations Board for this purpose.

The impression which may be conveyed to the reader is that such a highly centralized system would leave little freedom for principals or teachers to innovate. However, the absence of any form of local school government, such as that which exists in North America, leaves the principal considerable autonomy within his own school. Apart from a staff of inspectors, the principal provides the only link between the schools and the central authority. It has been the policy of the Department of Education over recent years to encourage innovation; certain aspects of this study reflect the extent to which principals have taken advantage of the considerable freedom they have to adapt programs to the needs of their schools.

Table I indicates the distribution of students in government and non-government schools in Victoria in 1966. The study was limited to government secondary schools.

VI. SUMMARY OF CHAPTER I

In the past the educational institution has been slow to respond to social forces in its task environment. However, there has been an increase in the rate of change in schools. As a key administrator in the school system studied, the principal is confronted with the problem of how

TABLE I

SCHOOL ENROLMENTS IN VICTORIA, AUSTRALIA, 1966.[14]

	Pre-primary & Primary Classes	Secondary Classes
Government Schools	336,288	187,498*
Non-Government Schools	113,330	69,525

*The study was concerned with principals drawn from these schools.

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[14]Department of Education and Science, Australia, Education News, 2 (October, 1967), 1-4.

to strike a balance between maintaining a smoothly functioning school, on the one hand, and of introducing new ideas which, at least temporarily, may upset the steady state of his organization on the other.

The purpose of this study was to ask principals directly about their attitudes toward this increased tempo of change and to determine whether their attitudes were associated with a number of variables related to their experience, personal characteristics and their schools. The study was the first of its kind to be carried out in a highly centralized system and was intended to add to existing theory based on research conducted in North America.

CHAPTER II

REVIEW OF THE LITERATURE

I. INTRODUCTION

The emphasis in this chapter has been placed upon literature related to the role of the school administrator in the process of educational change. As this study was concerned primarily with the school principal, particular attention has been given to literature relevant to his role in the change process.

Although the importance of school administrators in the change process is generally acknowledged, some writers have suggested that the impetus for educational change comes not from persons within the system, but from influences outside the system. Mackenzie[1] claims that persons outside the system, rather than educators, are the ones who exert influence to initiate change. He suggests that it is the influential writers, foundations, and persons with national visibility who give the greatest impetus to change in education.

Downey also notes the importance of these external influences. He states that:

> . . . renewed vigour on the part of educators, revived interest and activity on the part of the universities, and growing support on the part of the great foundations

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[1]Gordon N. Mackenzie, "Curricular Change: Participants, Power and Processes," (In Innovation in Education, ed. Matthew B. Miles. New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 424.

> as well as the general public--have contributed significantly to the emerging movement in innovation and improvement in the high school.[2]

Brickell's New York studies afford another illustration of the kind of influences which originate from outside the system. Brickell reports that the first Sputnik speeded both the introduction and diffusion of a wide range of new programs.

> The rate of instructional innovation in New York State public elementary and secondary schools more than doubled within fifteen months after the firing of the Soviet Sputnik 1. . . . Change swept not only the foreign languages, mathematics and science--which led the field by tripling their rate of change--but also all other subjects, non-academic as well as academic.[3]

It is clear that at least some of the impetus for change originates from outside the system. However, impetus for change does not necessarily mean that change will occur. Woods observes that someone must provide the leadership if new ways of doing things are to spread.[4] It is at this point that the role of the school administrator becomes relevant, and the literature reviewed in the following sections of this chapter focuses mainly upon his role.

II. EARLY STUDIES AT COLUMBIA UNIVERSITY

In the preceding section it was noted that leadership within the system is necessary if innovations are to be diffused. However, early

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[2]L. W. Downey, The Secondary Phase of Education, (New York: Blaisdell, 1965), p. 16.

[3]Henry M. Brickell, Organizing New York State for Educational Change, (New York: State Education Department, 1961), p. 18.

[4]Thomas E. Woods, The Administration of Educational Innovation, (Eugene: Bureau of Educational Research, University of Oregon, 1967), p. 24.

research focused mainly upon economic variables thought to be associated with the rate of adoption of educational innovations, and ignored the influence of administrators. From more than 150 studies carried out at Columbia University under his direction, Mort concluded that the best predictor of an innovative school system was per capita expenditure upon pupils.

Mort also concluded that change occurs more slowly in education than in other fields of endeavour:

> The spread of an innovation through the American school system proceeds at a slow pace. This . . . must be measured in decades. It is very slow for a decade or so, very rapid for a couple of decades, and then very slow during the mopping-up period.[5]

III. CARLSON'S WEST VIRGINIA AND ALLEGHENY COUNTY STUDIES

Carlson appears to be the first person to challenge the earlier conclusions of Mort. On the basis of studies completed in West Virginia and Allegheny County in 1963 and 1964 Carlson questioned these conclusions on the following grounds.

1. He found that it takes much less than fifty years for innovations to diffuse. Modern mathematics programs, after first being accpeted in 1958, had been adopted by seventy-three per cent of the school districts in West Virginia and Allegheny County, by 1963.[6]

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[5]Paul R. Mort, "Studies in Educational Innovation from the Institute of Administrative Research: An Overview," (in Innovation in Education, ed. Matthew B. Miles. New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 325.

[6]Richard O. Carlson, Adoption of Educational Innovation. (Eugene: The Centre for the Advanced Study of Educational Administration, 1965), p. 67.

2. Contrary to Mort's conclusions, Carlson's studies also revealed that the rate of adoption of educational innovations was not significantly related to the amount of money expended per child.

> In a recent study of the adoption of such educational practices as team teaching, modern math, foreign language instruction in the elementary grades, programmed instruction, ungraded primary classes, and accelerated programs in high schools among school systems in a county in western Pennsylvania, it was found that the amount of money spent per child . . . had no predictive power in relation to the rate of adoption of these innovations.[7]

Although Mort and Carlson reached conflicting conclusions, Woods suggests that "the fact that Carlson's studies followed Mort's may indicate that the rate of diffusion is quickening."[8] Holdaway and Seger observe that "probably the difference between the Columbia findings and those of Carlson can be explained in part by differences in the type of changes studied, and by differences in the time setting."[9]

Carlson's studies were not, however, primarily concerned with refuting the earlier conclusions of Mort. From his conviction that "the school superintendent is at the focal point in the decision process regarding innovations,"[10] Carlson focused most attention upon the superintendent as an element in the school system, and sought to determine whether

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[7]Richard O. Carlson, "Barriers to Change in Public Schools," Change Processes in the Public Schools. (Eugene: The Centre for the Advanced Study of Educational Administration, 1965), p. 8.

[8]Thomas E Woods, op. cit., p. 23.

[9]E. A. Holdaway and J. E. Seger, "Change and the Principal," The Canadian Administrator, 4 (January, 1967), 13-16

[10]Richard O. Carlson, Adoption of Educational Innovation. (Eugene: The Centre for the Advanced Study of Educational Administration, 1965), p. 11.

selected characteristics of the superintendent were related to the rate of adoption of educational innovations. He found that varying rates of adoption of new educational practices were associated with characteristics of the superintendent. High rates of adoption in Allegheny County, for example, were associated with superintendents who:

> . . . were promoted to their positions from outside the School system, who were highly educated, who were rated by their peers as being highly professional, who were opinion leaders, who did not exhibit conflict in their performance standards, who made accurate judgements about their rates of adoption in regard to median rates of adoption in the county, and who had recently acquired some formal education.[11]

The conclusion which Carlson draws from these findings is that the superintendent is not a victim of his budget. He suggests that it is the characteristics of the superintendent which are the important variables in accounting for the different rates of adoption of new educational practices. He also claims that the assumption that the superintendent's position in the organizational structure, specifically his subordination to the school board, renders him powerless and inconsequential in the matter of the acceptance of new practices, has little foundation in the light of the data yielded by his studies.[12]

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[11] Ibid., p. 55.

[12] Richard O. Carlson, "School Superintendents and the Adoption of Modern Math: A Social Structure Profile," (in Innovation in Education, ed. Matthew B. Miles. New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 340.

IV. THE PRINCIPAL'S ROLE IN THE PROCESS OF EDUCATIONAL CHANGE

Commenting upon the views expressed in a group discussion in Oregon, Miles reports that:

> We had been talking up to that point almost as if the superintendent were the key--as if he were the only person in the situation and as if his way of operating an innovative role was to be the sole determinent of the consequences. The group began backing away and pointing out that there are figures called building principals, and various other figures in the system, and that working with them turns out to be very crucial.[13]

There is, however, little agreement in the literature regarding the role most appropriate for the principal in the change process. Some of the suggested roles are reviewed in the following paragraphs.

The Principal as a Change Agent

A number of writers have suggested that the principal should assume the responsibility for initiating and advocating educational change in the direction he perceives as desirable.[14]

MacKay, however, regards the change agent role as inappropriate for the principal.[15] The change agent concept has been borrowed from

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[13] Matthew B. Miles, "Summaries of Group Discussions," Change Processes in the Public Schools. (Eugene: The Centre for the Advanced Study of Educational Administration, 1965), p. 81.

[14] L. W. Downey, op. cit., pp. 197-204 and 223; N. M. Purvis, "The Use of Staff Projects in In-service Education," (The Skills of an Effective Principal. Edmonton: The Policy Committee, Leadership Course for School Principals, 1961), pp. 65-81; E. H. Ziolkowski, "Practices in the Supervision of Instruction," The Canadian Administrator. 5 (October, 1965), 1-4.

[15] D. A. MacKay, "Should Principals be Change Agents?" The Principal and Educational Change. (Edmonton: The Policy Committee, Leadership Course for School Principals, 1966), p. 60.

rural and medical sociology, and MacKay suggests that there is a fundamental difference between the county agricultural extension agent, or the drug salesman, and the school principal; the difference lies in the fact that the drug salesman, for example, is an outsider to the hospital or clinic to which he advocates the advantages of a new product. The school principal on the other hand, is an "insider" and although

> He may think of himself as "selling the idea" to the staff--the staff may see him as an autocrat imposing his will arbitrarily upon them. While the innovation is adopted, the unplanned for results may be low staff morale, and an increasing level of resistance to any ideas coming from the principal.[16]

The Principal as a Facilitator of Change

Rather than being an advocate or promoter of change in the sense of selling ideas to his staff, some writers have suggested that the principal should establish conditions in his school which encourage and stimulate staff to work together on problems relating to change. This view is taken by Chesler, Schmuck and Lippitt in their study of the principal in facilitating the adoption of innovations in elementary schools.

> Rather than being an innovator himself, the principal's chief function in change is to facilitate and encourage innovation on the part of the school staff.[17]

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[16] *Ibid*.

[17] M. Chesler, R. Schmuck, and R. Lippitt, "The Principal's Role in Facilitating Innovation," *Theory into Practice*, 2 (December, 1963), 269-277.

Ingram[18] has suggested that the principal may facilitate change in his school by creating a buffer zone designed to make his staff less vulnerable to direct public criticism arising from changes they propose to implement. He observes that schools, more than other public organizations, are subject to control, criticism, and a wide variety of demands from the society they serve. By providing a buffer against public criticism the principal can help create a climate in which innovations can be nurtured until their superiority has been demonstrated to their critics.

The Principal's Role in Overcoming Resistance to Change

It is not uncommon for an innovation to be resisted in a school, even though it can be demonstrated that its adoption would increase the organization's effectiveness. Brickell has suggested that:

> . . . a school, like any other institution, tends to continue to do what it was established to do, holding itself relatively stable and resisting attempts at restructuring.[19]

Downey also notes that the school tends to seek a state of equilibrium, or what he terms a state of "no change."[20] As the school has assumed the function of preserving the cultural heritage of the society it serves, and of transmitting this heritage from one generation to the

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[18] E. J. Ingram, "Implementing Educational Change," The Principal and Educational Change. (Edmonton: The Policy Committee, Leadership Course for School Principals, 1966).

[19] Henry M. Brickell, op. cit., p. 19.

[20] Ibid.

next, it is unlikely to become a leading proponent of change.[21] The principal's task is to overcome the condition of "no change" by upsetting the equilibrium, or creating imbalance in the organization:

> Keen sensitivity as to the type and amount of disequilibrium appropriate to changes is the key to effective direction of change in an institution.[22]

These are some of the roles which have been described as appropriate for the principal in the process of educational change. However, just as there are conflicting opinions about what the principal's role ought to be, there is conflicting evidence regarding the extent to which the principal plays any significant role at all. Demeter concluded from his study that:

> Building principals are key figures in the process. Where they are both aware of and sympathetic to an innovation, it tends to prosper. Where they are ignorant of its existence, or apathetic if not hostile, it tends to remain outside the life-blood of the school.[23]

The findings of Wiens,[24] however, question the extent to which the principal is a key figure in the change process. Wiens found that the attitudes to change held by influential members of school staff in his sample, including the principals, were significantly related to the amount

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[21] Ibid.

[22] Ibid., p. 203.

[23] Lee Demeter, "Accelerating the Local Use of Improved Educational Practice in Schools Systems," (unpublished Doctoral dissertation, Teachers College, Columbia University, 1951), cited in Everett M. Rogers, "What are Innovators Like?" Theory into Practice. 2 (December, 1963), 252-256.

[24] John Wiens, "Attitudes, Influence and Innovativeness," An Analysis of Factors Related to Innovativeness in Educational Organizations," (unpublished Doctoral dissertation, University of Alberta, Edmonton, 1968).

of innovation in schools; in fact, the attitudes of this influential group accounted for thirty-five per cent of the variation in innovativeness for the schools in his sample.[25] However, the attitudes toward innovation held by principals did not correlate significantly with the innovativeness of their own schools.

> It is usually assumed . . . that one of the functions of the principal of a school is to provide leadership in his school. Presumably, then, the attitudes held by the principal should be important in determing the direction the school will take in matters as important as change and innovation. The fact that principals in the present sample were not influential in this respect should be a matter of some concern to administrators.[26]

The Personal Characteristics of the Principal and the Social Factors of his School.

Studies completed by Holdaway[27] and Marion[28] investigated relationships between the innovativeness of principals (defined in terms of the number of innovations and the extent to which they had been adopted in the principal's school) and personal characteristics of the principal and social factors of his school.

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[25] Ibid., p. 143.

[26] Ibid., p. 149.

[27] E. A. Holdaway, "An Analysis of Some Factors Affecting Innovation in Elementary Schools," (unpublished Master's thesis, University of Alberta, Edmonton, 1966).

[28] G. B. Marion, "A Study of Selected Factors Related to the Innovativeness of Elementary School Principals," (unpublished Doctoral dissertation, University of Alberta, Edmonton, 1966).

These two studies closely followed the publication of Carlson's findings. "As a logical consequence of Carlson's study it seemed important to study the role of the individual principal and school in the adoption process."[29] Just as Carlson had demonstrated the significance of the personal characteristics of the superintendent in the change process these studies indicated that certain characteristics of principals and their schools were associated with their innovativeness. Marion concluded that the innovative principal

> . . . tends to be younger than his fellow principals, to be cosmopolite, more professionally oriented, to be influential among his fellow principals, to be mentally flexible, to be viewed as highly innovative by other principals and to have recently taken university courses. The innovative principal usually works in a school situated in a higher socio-economic area of the community, staffed by teachers who favour the adoption of new educational practices.[30]

SUMMARY OF CHAPTER II

While some of the impetus for educational change may originate from outside the system, leadership within the system is necessary for the diffusion of innovations. Early research by the staff and students at Columbia University focused mainly upon the economic variables associated with rates of adoption, rather than upon administrators.

Carlson's West Virginia and Allegheny County studies indicated that the characteristics of the superintendent accounted for a large proportion of the variance in the time of adoption of selected innovations.

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[29] E. A. Holdaway and J. E. Seger, op. cit.

[30] G. B. Marion, op. cit., p. v.

A number of studies completed after the publication of Carlson's findings have concentrated upon the role of the principal in the change process and have indicated that the innovativeness of the principal is associated with certain personal characteristics and social factors related to his school.

While there are many views expressed in the literature regarding the role most appropriate for the principal in the process of educational change, there is conflicting evidence regarding the extent to which his actual role is a significant one.

The present study was perceived as one which would add to the findings of this recent research on the principal's role in the change process.

CHAPTER III

THE CONCEPTUAL FRAMEWORK

I. INTRODUCTION

Attention in this chapter has been focused first upon general theory, particularly Rogers' paradigm, and second upon the specific findings of studies related to this research. The purpose of these two steps was to identify those concepts necessary for establishing the research hypotheses.

II. ROGERS' PARADIGM

Rogers' paradigm of the adoption of an innovation by an individual in a social system[1] has provided the conceptual framework for many recent studies concerned with innovation. The paradigm has three major dimensions which are (1) the antecedents to change, or "those factors present in the situation prior to the introduction of an innovation,"[2] (2) the adoption process, which is affected by the perceived characteristics of an innovation, and (3) the results, when an innovation is either adopted or rejected.

The segment of the paradigm most relevant to the present study was that which relates to the antecedents to change. The antecedents may be dichotomized as (1) the actor's identity, which comprises "his sense

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[1] Everett M. Rogers, Diffusion of Innovations. (New York: The Free Press of Glencoe, 1962), p. 306.

[2] Ibid., p. 305.

of security, his dominant values, his mental ability and conceptual skill, his social status, and his cosmopoliteness,"[3] and (2) the actor's perceptions of the situation, such as the social system's norms on innovativeness and economic constraints and incentives.

In this study the concept of the actor's identity, as one aspect of the antecedents to change, served as a general framework within which to investigate the extent to which specific characteristics of principals are associated with their attitudes toward innovation.

It is emphasized, however, that Rogers' paradigm refers to the adoption of an innovation; the present research was concerned primarily with attitudes toward innovation. The relevance of Rogers' theory and the studies reported in the following sections is therefore qualified by the fact that the dependent variable in most cases was innovativeness, defined in terms of the number of innovations and the extent to which they had been adopted. Thus the conclusions, noted in the following studies served only to provide broad guidelines for establishing research hypotheses.

III. CHARACTERISTICS OF THE PRINCIPAL

The Principal's Attitude Toward Innovation

It was reported in Chapter II that Wiens had investigated, in the context of a larger study, the relationship between the attitudes toward innovation of school staff influentials and the innovativeness of schools, and that he had found that principals' attitudes toward innovation did not

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[3] Ibid., p. 307.

correlate with the innovativeness of their schools.[4] In view of the fact that the present study was carried out in a different educational setting, where the principal is not subordinate to a superintendent, the investigator felt that the principals' attitudes toward innovation would be more closely associated with the innovativeness of their schools. It was therefore hypothesized that attitudes toward innovation of high school principals are associated with the innovativeness of their schools.

Personal Characteristics of the Principal

Cosmopoliteness. There is a strong body of research which suggests that innovativeness is associated with cosmopoliteness. Rogers reports a number of studies from rural, medical and industrial sociology which indicate a positive relationship between these variables:

> Ryan and Gross (1943) found that hybrid corn innovators travelled more often to urban centres . . . than did the average farmer. Medical doctors who were innovators attended more out-of-town professional meetings than did non-innovators (Menzel and Katz, 1955). Carter and Williams (1959) found that the most innovative industrial firms they studied were very cosmopolite.[5]

Carlson's West Virginia and Allegheny County studies revealed that a high rate of adoption was associated with superintendents who were rated by their peers as having frequent contact with persons outside their geographic areas; late adopters and non-adopters relied more upon local sources

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[4] John Wiens, "Attitudes, Influence and Innovativeness: An Analysis of Factors Related to Innnovativeness in Educational Organizations," (unpublished Doctoral dissertaion, University of Alberta, Edmonton, 1968).

[5] E. M. Rogers, op. cit., p. 183.

for advice and information about new practices.[6] Marion[7] concluded that innovative principals tended to be cosmopolites.

In view of these findings it was hypothesized that attitudes toward innovation of high school principals are associated with cosmopoliteness.

Age. Rogers states that:

> The general evidence seems to indicate that innovators are younger than laggards. There are adequate theoretical grounds for expecting the younger members of a social system to be more innovative. The socialization of personality occurs mainly in very early life. In a rapidly changing culture, this means that younger people learn a more modern set of cultural values than do older people, who were socialized in an earlier era.[8]

Holdaway found that the extent of adoption of selected innovations was negatively correlated with the school principal's age,[9] a conclusion which was supported by Marion.[10] In his investigation of the instructional innovativeness of teachers Yakimishyn found that younger teachers scored higher in three of his five adoption scales.[11]

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[6]R. O. Carlson, Adoption of Educational Innovations. (Eugene: The Centre for the Advanced Study of Education, 1965), p. 54.

[7]G. B. Marion, "A Study of Selected Factors Related to the Innovativeness of Elementary School Principals," (unpublished Doctoral dissertation, University of Alberta, Edmonton, 1966).

[8]E. M. Rogers, op. cit., p. 175.

[9]E. A. Holdaway, "An Analysis of Some Factors Affecting Innovation in Elementary Schools," (unpublished Master's thesis, University of Alberta, Edmonton, 1966), p. 95.

[10]G. B. Marion, op. cit., p. 195.

[11]M. P. Yakimishyn, "A Study of the Relationship Between Selected Characteristics and the Innovativeness of Junior High School Teachers," (unpublished Master's thesis, University of Alberta, Edmonton, 1967), p. 133.

It was therefore hypothesized that attitudes toward innovation of high school principals are associated with age.

Mental rigidity. In the segment of Rogers' paradigm which relates to the actor's identity, mental ability is included as one of the characteristics. This term is used rather broadly by Rogers to include intelligence, knowledge of technology relevant to the adopter's field, dogmatism, and mental rigidity. Mental rigidity was selected for special study because several studies have demonstrated its association with innovativeness.

Rogers found that more innovative farmers scored lower on a rigidity scale.[12] Copp found, in a study of Kansas cattlemen, that innovators had greater mental flexibility than laggards.[13] Marion concluded that innovative principals were more mentally flexible.[14]

It was therefore hypothesized that attitudes toward innovation of high school principals are associated with mental rigidity.

Academic and Professional Characteristics of the Principal

In the preceding section it was noted that Rogers included in his discussion related to mental ability, technical knowledge relevant to the adopter's field. It was therefore decided to investigate whether

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[12]E. M. Rogers, op. cit., p. 178.

[13]James H. Copp, "Personal and Social Factors Associated with the Adoption of Recommended Farm Practices Among Cattlemen," Kansas Agricultural Experiment Station Technical Bulletin, 83, cited in E. M. Rogers Diffusion of Innovations. (New York: The Free Press of Glencoe, 1962), p. 178.

[14]G. B. Marion, op. cit., p. 192.

the amount of formal education and its recency affected the principal's attitude toward innovation.

Amount of education. A number of studies have investigated the relationship between innovativeness and the amount of education of adopters. Guy concluded that principals of adopter schools tended to have more years of tertiary education than did principals of non-adopter schools.[15] Carlson's studies indicated that late adopters and non-adopters had less formal education.[16] Although both Holdaway and Marion investigated this characteristic, they found no significant relationship between the innovativeness of principals and the amount of formal education undertaken. In view of this conflicting evidence, it was decided to investigate whether the amount of education of principals was associated with their attitudes toward innovation. It was hypothesized that attitudes toward innovation of high school principals are associated with the amount of formal education undertaken.

Recency of formal study. Marion and Holdaway reported that the recency of formal education, rather than the amount, was the factor which was associated with the innovativeness of principals. Marion states that:

> Given the same amount of education, a teacher who has recently taken formal courses is more likely to be an innovative principal than one who has not recently undergone formal education.[17]

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[15] A. J. Guy, "The Relation of the Principal's Perception of the Characteristics of the Division II Curriculum and the Extent of the Implementation of the Program in Saskatchewan Schools," (unpublished Master's thesis, University of Alberta, Edmonton, 1967), p. 139.

[16] R. O. Carlson, op. cit.

[17] G. B. Marion, op. cit., p. 152.

It was therefore hypothesized that attitudes toward innovation of high school principals are associated with recency of formal education.

Experience Characteristics of the Principal

Length of tenure in present position, years of experience as a principal, and time engaged in classroom teaching. Theory relating to the experience characteristics of adopters is limited. Observing that organizations tend to maintain a steady state, and that the major impetus for change comes from outside rather than inside an organization, Griffiths proposes that "the number of innovations is inversely proportional to the tenure of the chief administrator."[18] Although Holdaway[19] and Guy[20] found no significant relationship between the length of tenure of principals and their innovativeness, it was decided to investigate whether length of tenure was associated with principals' attitudes toward innovation. It was hypothesized that attitudes toward innovation of high school principals are associated with the length of time principals have been in their present positions.

In addition to the above hypotheses, research by Holdaway and Marion suggested investigation into the effects upon attitudes toward innovation of the years of experience as a principal and the extent to

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[18]D. E. Griffiths, "Administrative Theory and Change in Organizations," (in Innovation in Education, ed. Matthew B. Miles, New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 434.

[19]E. A. Holdaway, op. cit.

[20]A. J. Guy, op. cit.

which the principal was engaged in classroom teaching. It was hypothesized that attitudes toward innovation of high school principals are associated with the length of experience as a principal and the extent to which principals are engaged in classroom teaching.

IV. INFORMATION SOURCES USED BY PRINCIPALS

Rogers discusses the relevance of various kinds of information sources at the different stages of the adoption process:

> Information sources are important stimuli to the individual in the adoption process. The individual becomes aware of the innovation mainly by impersonal and cosmopolite sources such as mass media. At the evaluation stage the individual forms his perception of the characteristics of the innovation. Localite and personal information are more important at the evaluation stage.[21]

There is, however, no evidence in the literature of the relationship between attitudes toward innovation and the sources from which information about innovations is derived. Therefore the following hypothesis was exploratory, and was based upon the investigator's assumption that principals who relied mainly upon information sources from within the system, such as the central office of the Department of Education and its inspectors, would have different attitudes toward innovation than those who relied upon more cosmopolite sources, such as professional journals. It was therefore hypothesized that attitudes toward innovation of high school principals are associated with the sources from which information about innovations is derived.

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[21] E. M. Rogers, op. cit., p. 307.

V. SUMMARY OF HYPOTHESES

Hypothesis 1. Attitudes toward innovation of high school principals are associated with the innovativeness of their schools.

Hypothesis 2. Attitudes toward innovation of high school principals are associated with cosmopoliteness.

Hypothesis 3. Attitudes toward innovation of high school principals are associated with age.

Hypothesis 4. Attitudes toward innovation of high school principals are associated with mental rigidity.

Hypothesis 5. Attitudes toward innovation of high school principals are associated with the amount of formal education undertaken.

Hypothesis 6. Attitudes toward innovation of high school principals are associated with the recency of formal education.

Hypothesis 7. Attitudes toward innovation of high school principals are associated with the length of time principals have been in their present positions.

Hypothesis 8. Attitudes toward innovation of high school principals are associated with the length of experience as a principal.

Hypothesis 9. Attitudes toward innovation of high school principals are associated with the amount of time principals are engaged in classroom teaching.

Hypothesis 10. Attitudes toward innovation of high school principals are associated with the sources from which information about innovations is derived.

VII. SUMMARY OF CHAPTER III

Ten hypotheses were developed upon the basis of Rogers' paradigm and the specific findings of studies related to this research. It was hypothesized that principals' attitudes towafd innovation were associated with certain personal, experience, academic and professional characteristics, and with the sources from which information about innovations is derived. It was also hypothesized that principals' attitudes toward innovation were associated with the innovativeness of their schools.

CHAPTER IV

RESEARCH PROCEDURES

I. THE POPULATION

All principals of Victorian government high schools containing classrooms from grade seven to twelve were invited to participate in the study if they had two or more years experience as principals. Responses were received from 139 of the 170 principals concerned. Owing to ten incomplete returns only 129 of the responses were used, which meant that seventy-six per cent of the population was included in the study.

The population was delimited to exclude persons with fewer than two years experience as principals because it was assumed that at least two years were necessary for attitudes toward innovation to be established from the principal's viewpoint.

By inviting all principals with the required experience to participate in the study, it was hoped to meet Carlson's objection about many studies on innovation that:

> Despite the importance of innovators, apparently all explorations of their characteristics . . . suffer from an inadequate number of cases from which to make generalizable statements.[1]

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[1] R. O. Carlson, Adoption of Educational Innovations, (Eugene: The Centre for the Advanced Study of Educational Administration, 1965), p. 65.

II. LIMITATIONS

It was not intended to investigate every personal or experience characteristic which may be associated with principals' attitudes toward innovation. Furthermore, the research did not consider the possible effects upon principals' attitudes of situational variables, such as the system's norms on innovativeness, staff turnover, or other situational constraints or incentives.

Nor did the research consider the effects upon principals' attitudes of the perceived characteristics of innovations, such as their relative advantage, complexity, divisibility, communicability, or compatability with existing practices.[2]

Finally, the fact that the research was carried out at such a long distance from Victoria seriously limited the methods by which data could be collected. In particular, the information relating to the innovativeness of schools would conceivably have been more reliable had the investigator been able to visit schools and rank them by empirical observation.

III. ASSUMPTIONS

The major assumptions underlying the present research were:

1. That the instruments used to measure attitudes toward innovation, mental rigidity, cosmopoliteness, and innovativeness of schools provided meaningful and discriminating measures of these variables.

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[2] E. M. Rogers, Diffusion of Innovations, (New York: The Free Press of Glencoe, 1962), p. 124.

2. That principals had authority to adopt or to reject the innovations included in the instrument.

3. That the group of principals, comprising eighteen per cent of the population, who did not respond to the questionnaire, were not characterized by attitudes toward innovation, or other characteristics which were consistently different from those of principals who participated in the study.

IV. INSTRUMENTATION

The instruments used for gathering the data necessary for testing the hypotheses established in Chapter III are described in the following sections. Copies of the actual instruments are provided in Appendix A.

The Criterion Measure: Attitudes Toward Innovation

Principals' attitudes toward innovation were measured by the Principal Opinion Questionnaire, a Likert-type questionnaire consisting of sixteen items. This instrument was developed by Wiens[3] who referred to it as the Teacher Opinion Questionnaire. Wiens tested the reliability of the instrument in a pilot study, using seventy-three teachers. The coefficient for internal consistency based on the split half technique was .866, while the coefficient for stability based on the test-retest

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[3]J. Wiens, "Attitudes, Influence and Innovativeness: An Analysis of Factors Related to Innovativeness in Educational Organizations," (unpublished Doctoral dissertation, University of Alberta, Edmonton, 1968.)

method was .805.[4] The item-total score correlations for the sixteen items on the questionnaire ranged from .352 to .623.[5]

Wiens also obtained estimates of the validity of the instrument by asking principals and assistant superintendents to rate their teachers on a five point scale on the basis of their acceptance of change. Each teacher's score on the Teacher Opinion Questionnaire was correlated with these independent ratings; the result was a correlation of .455.[6]

Each of the sixteen items was scored from one to five depending upon the response category chosen. The principal's attitude score was obtained by summing the scores on the individual items.

The Predictors

Mental rigidity was measured by the Gough-Sanford Rigidity Scale which is part of the California Psychological Inventory (CPI). The CPI contains eighteen sub scales, one of which is the Gough-Sanford Rigidity Scale, designated Fx (flexibility). In a review of the tests contained in the CPI, Cronbach reports that:

> The development and technical work on the scale are of a high order. The reliabilities were carefully determined by re-testing. Validity for each scale was obtained by comparing groups which the scale presumably ought to discriminate; dozens of cross validities on sizeable samples are reported. . .[7]

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[4] Ibid., p. 68.

[5] Ibid., p. 69.

[6] Ibid., p. 68.

[7] Lee J. Cronbach, The Fifth Mental Measurements Yearbook, (ed. O. K. Buros, New Jersey: The Gryphon Press, 1959), p. 37.

Marion reports three validity studies carried out on the Fx scale. In a sample of forty University of California graduate students, Fx correlated -.48 with the staff's rating of "rigidity". In an assessment study of forty University of California medical school seniors, Fx correlated -.36 with the staff's rating of "rigidity". In a college class of 180 students, Fx correlated -.58 with the California F (Authoritarian Personality) scale.[8]

In the present study the Fx scale, which contains 22 true or false statements, was modified to exclude the final question which the investigator believed to be prejudicial to an adequate response on the rest of the questionnaire. Principals were asked to respond "true" or "false" to each of the twenty-one remaining items according to whether they thought the statement was or was not true about them. For each response of "false" a score of one was recorded; the lower the score recorded, the greater was the measured mental rigidity of the respondent.

Cosmopoliteness. The measure of cosmopoliteness was derived from a thirteen item instrument, the Cosmopoliteness Questionnaire, developed for the present study by the investigator. Basically the instrument was similar to the Index of Cosmopoliteness used by Marion,[9] but was extensively modified to meet the different circumstances in Australia. Each

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[8]G. B. Marion, "A Study of Selected Factors Related to the Innovativeness of Elementary School Principals," (unpublished Doctoral dissertation, University of Alberta, Edmonton, 1966), p. 77.

[9]Ibid., pp. 210-213.

of the questions was designed to assess the extent to which the principal's orientation was external to a number of social systems to which he belonged--his school system, town or city, and his state. No tests for reliability or validity were carried out for this instrument.

Items one, three and eleven were scored in the following manner: the mean number of magazines, organizations, and persons with whom the principal discussed educational practices was computed. A score of two was given to principals who ranked above the mean, a score of one to those who ranked below the mean, and a score of zero to those who reported no activity whatsoever in the area concerned.

A score of two was given to principals who checked the second space in items two and twelve, and a score of one to principals who checked the first space. Where a negative response was given in questions four, six, seven, eight and nine, a score of one was recorded; a positive response received a score of two. A positive response to parts one to three of question five received scores of one, two and three respectively; negative responses received scores of zero, one and one respectively. In question thirteen, answering in space one gave a score of two, space two a score of one, space three a score of three, and space four a score of four.

The scores on each item were then summed to give a cosmopoliteness score. The higher the score on this instrument, the more cosmopolite was the respondent.

Innovativeness of the school. The following criteria were applied to the innovations included in Part 2 of the instrument relating to the innovativeness of the principal's school:

1. The innovation did not have to be an objectively new practice, but one which was perceived as novel by the principal.

2. The innovation had to be discretionary; that is, the principal had to have authority to adopt it or to reject it.

3. Each innovation had to be familiar to all principals who participated in the study.

Each item in the instrument was evaluated by the Assistant Director of Secondary Education for Victoria in the light of these criteria.

It was anticipated that the nature of innovation would vary considerably from school to school, as the Director of Secondary Education had given principals freedom and encouragement to adopt new practices. In view of this expectation that there would be a wide variety of new practices, two of the questions were left "open ended".

No attempt was made to measure or compare the extent of adoption of innovations in different schools; any progress towards the adoption was assumed by the investigator to be an acceptable measure of innovativeness in the school system studied.

According to the responses given, schools were classified as high, medium, or low adopter schools. The classification into these three categories was based upon a total score derived from the responses and the number of the following areas in which innovations had been adopted: pupil organization, staff utilization, pupil evaluation, educational technology, and curriculum content.

Other predictors. Data relating to the principal's age, length of experience as a principal, length of tenure in present school, amount and recency of formal education, amount of time engaged in classroom teaching, and sources of information from which information relating to innovations was derived, were collected on Parts 1 and 3 of the instrument.

V. OPERATIONAL DEFINITIONS

Attitude toward innovation was the score obtained on the Principal Opinion Questionnaire.

Mental rigidity was the score obtained on the modified Fx scale.

Cosmopoliteness was the score obtained on the Cosmopoliteness Questionnaire.

School innovativeness referred to the number of new practices adopted and the extent to which they included innovations in the areas of pupil organization, staff utilization, pupil evaluation, educational technology, and curriculum content.

VI. SUMMARY OF CHAPTER IV

All principals of government high schools in Victoria, who had two or more years of experience as principals, were invited to participate in the study. One hundred and twenty nine principals, representing seventy-six per cent of the population, were included in the study.

The instruments which were used to collect the data necessary for testing the hypotheses established in Chapter III were described, and an explanation was provided of the manner in which these were scored.

A statement of the limitations and major assumptions underlying the research was also given in this chapter.

CHAPTER V

ANALYSIS OF DATA

I. INTRODUCTION

In Chapter III it was hypothesized that certain personal, experience, academic and professional characteristics were associated with attitudes toward innovation held by high school principals. It was also hypothesized that attitudes toward innovation were associated with the innovativeness of principals' schools and the sources from which information about innovations was derived.

This chapter is concerned mainly with the methods which were used to test these hypotheses, and with a discussion of the findings. A description is also given of the characteristics of the population of principals who participated in the study.

II. DESCRIPTION OF THE POPULATION

As mentioned in Chapter IV, the 129 principals who participated in the study were principals of government high schools with classes ranging from grade seven to twelve. All principals had at least two years experience as principals, excluding the present year.

All principals but five were male. Table II shows that forty-three per cent were over the age of fifty-five years, while only eight per cent were under the age of forty years. The low numbers represented in the younger age groups is partly explained by the fact that the thirty-one principals excluded from the study because they had fewer than two years experience were conceivably a younger group.

TABLE II

FREQUENCY DISTRIBUTION OF PRINCIPALS
ACCORDING TO THEIR AGE

(N = 129)

Age of Principal	Frequency	Percentage frequency
Under 35 years	1	0.7
35 - 40	9	7.1
41 - 45	13	10.0
46 - 50	20	15.5
51 - 55	30	23.3
56 years and over	56	43.4
TOTAL	129	100

Further information about the population is provided in Tables III - VIII. Table IV shows that while almost seventy per cent of the population had five or more years of tertiary education, seventy-three per cent had undertaken no formal study within the last ten years. As most principals fell within the third category for both amount and recency of formal education, neither of these variables discriminated as effectively as other variables used in the study.

Table V shows the distribution of principals according to their scores obtained on the Cosmopoliteness Questionnaire. The scores were almost normally distributed with a mean of 19.96 and a standard deviation of 3.93.

The distribution of principals according to their scores on the modified Fx scale is shown in Table VI. The distribution was slightly negatively skewed, with a mean of 11.28 and a standard deviation of 3.16.

Table VII refers to principals' scores on the Principal Opinion Questionnaire, which measured attitudes toward innovation. This distribution was negatively skewed with a mean of 56.77 and a standard deviation of 8.27.

Table VIII shows the item-total score correlations for the Principal Opinion Questionnaire; all correlations were significant at least at the 0.01 level.

III. HYPOTHESIS TESTING

Analysis of variance was used to determine whether personal, academic and experience characteristics of principals were associated

TABLE III

FREQUENCY DISTRIBUTION OF PRINCIPALS ACCORDING TO THEIR EXPERIENCE CHARACTERISTICS

(N = 129)

Experience characteristics		Frequency	Percentage Frequency
Years of experience as a principal	Less than 5	27	20.9
	5 - 10	59	45.8
	More than 10	43	33.3
	TOTAL	129	100
Number of years in present position	Less than 2	24	18.6
	2 - 5	71	55.0
	More than 5	34	26.4
	TOTAL	129	100

TABLE IV

FREQUENCY DISTRIBUTION OF PRINCIPALS ACCORDING TO THEIR ACADEMIC CHARACTERISTICS

(N = 129)

Academic characteristic		Frequency	Percentage Frequency
Amount of tertiary education	3 years or less	3	2.3
	4 years	36	27.9
	5 years or more	90	69.8
	TOTAL	129	100
Recency of formal study	Within last 3 years	9	6.9
	4 - 10 years ago	26	20.2
	More than 10 years ago	94	72.9
	TOTAL	129	100

TABLE V

FREQUENCY DISTRIBUTION OF PRINCIPALS' SCORES ON THE COSMOPOLITENESS QUESTIONNAIRE

(N = 129)

Cosmopoliteness Scores	Frequency	Percentage Frequency
8*	0	0.0
9	0	0.0
10	0	0.0
11	0	0.0
12	1	0.8
13	3	2.3
14	4	3.1
15	9	7.0
16	12	9.3
17	9	7.0
18	11	8.5
19	12	9.3
20	17	13.2
21	9	7.0
22	10	7.7
23	3	2.3
24	8	6.2
25	8	6.2
26	4	3.1
27	5	3.9
28	2	1.6
29	2	1.6
30	0	0.0
TOTAL	129	100

Mean 19.96
Standard deviation 3.93

*Minimum possible score

TABLE VI

FREQUENCY DISTRIBUTION OF PRINCIPALS' SCORES ON THE MODIFIED Fx SCALE

(N = 129)

Principal's score on the modified Fx scale	Frequency	Percentage frequency
0	0	0.0
1	0	0.0
2	0	0.0
3	0	0.0
4	2	1.6
5	2	1.6
6	7	5.4
7	7	5.4
8	4	3.1
9	15	11.6
10	12	9.3
11	16	12.4
12	23	17.8
13	10	7.7
14	11	8.5
15	10	7.7
16	4	3.1
17	2	1.6
18	2	1.6
19	1	0.8
20	1	0.8
21	0	0.0
TOTAL	129	100

Mean 11.28

Standard Deviation 3.16

TABLE VII

FREQUENCY DISTRIBUTION OF PRINCIPALS' SCORES ON THE PRINCIPAL OPINION QUESTIONNAIRE

(N - 129)

Principal's score on the Principal Opinion Questionnaire	Frequency	Percentage Frequency
28-29	1	0.8
30-31	0	0.0
32-33	0	0.0
34-35	1	0.8
36-37	1	0.8
38-39	1	0.8
40-41	1	0.8
42-43	2	1.5
44-45	3	2.3
46-47	4	3.1
48-49	11	8.5
50-51	9	7.0
52-53	7	5.4
54-55	10	7.7
56-57	10	7.7
58-59	16	12.4
60-61	14	10.9
62-63	9	7.0
64-65	15	11.6
66-67	7	5.4
68-69	1	0.8
70-71	3	2.3
72-73	1	0.8
74-75	0	0.0
76-77	1	0.8
78-79	1	0.8
80	0	0.0
TOTAL	129	100

Mean 56.77

Standard deviation 8.27

TABLE VIII

ITEM-TOTAL SCORE CORRELATIONS FOR THE PRINCIPAL OPINION QUESTIONNAIRE

(N = 129)

Item Number	Correlation with Total
1	0.46*
2	0.57*
3	0.56*
4	0.27*
5	0.42*
6	0.62*
7	0.36*
8	0.52*
9	0.45*
10	0.56*
11	0.65*
12	0.55*
13	0.22*
14	0.52*
15	0.47*
16	0.76*

*Significant at the 0.01 level

with their attitudes toward innovation. Where significant F ratios were obtained, a Newman-Keuls comparison between ordered means was applied to the data to determine which pair, or pairs of means, were significantly different.

The alpha level was set at the 0.05 level for all tests.

Testing hypothesis one, that attitudes toward innovation of high school principals are associated with the innovativeness of their schools.

Principals were placed in three groups according to the innovativeness of their schools. Analysis of variance of the attitude toward innovation scores of these three groups gave a significant overall F ratio of 13.30 (Table IX).

A Newman-Keuls comparison of ordered means revealed significant differences between the mean score of principals of high adopter schools and the mean scores of the other two groups (Table X).

Hypothesis one was therefore accepted.

Discussion. Although significant differences in principals' attitudes toward innovation were associated with the innovativeness of their schools, it was not concluded that a receptive attitude toward innovation contributed to the innovativeness of a principal's school. Receptive attitudes may have resulted from the experience of being a principal in a school where innovations had been implemented successfully by the efforts of other influentials on the staff. The question which remains, therefore, is which came first--the receptive attitude, or the innovative school?

TABLE IX

ANALYSIS OF VARIANCE OF PRINCIPALS'ATTITUDES TOWARD INNOVATION WITH PRINCIPALS GROUPED ACCORDING TO THE INNOVATIVENESS OF THEIR SCHOOLS

(N = 129)

Group according to Innovativeness of Schools	N	Mean Attitude Score of Principals	Standard Deviation
High adopter schools	14	65.14	7.77
Medium adopter schools	66	57.45	7.98
Low adopter schools	49	53.49	6.75

d.f. = 126

F = 13.30

P = 0.000

TABLE X

NEWMAN-KEULS COMPARISON OF MEANS OF PRINCIPALS' ATTITUDE SCORES WITH PRINCIPALS GROUPED ACCORDING TO THE INNOVATIVENESS OF THEIR SCHOOLS

(N = 129)

	High Adopter Schools	Medium Adopter Schools	Low Adopter Schools
Low adopter schools	* *	-	
Medium adopter schools	* *		
High adopter schools			

* * significant at the 0.01 level

Testing hypothesis two, that attitudes toward innovation of high school principals are associated with cosmopoliteness.

A significant overall F ratio was obtained for attitudes toward innovation scores when principals were grouped according to their cosmopoliteness (Table XI).

A Newman-Keuls comparison of the means for each group of principals revealed that there were significant differences between each of the four groups (Table XII). Principals who obtained high scores on the scale which measured attitudes toward innovation also obtained high scores on the Cosmopoliteness Questionnaire.

Hypothesis two was therefore accepted.

Discussion. In Chapter III it was reported that there was a strong body of research which pointed to a relationship between innovativeness and cosmopoliteness. The findings reported here were therefore to be expected, even though the criterion measure in this study was attitudes toward innovation, rather than the actual adoption of innovations, which provided the bases for establishing criterion measures in related research.

Testing hypothesis three, that attitudes toward innovation of high school principals are associated with age.

When principals were grouped according to age, analysis of variance gave a significant overall F ratio for their attitudes toward innovation scores (Table XIII).

A Newman-Keuls comparison of ordered means indicated that the significant difference existed between the mean attitude score of the

TABLE XI

ANALYSIS OF VARIANCE OF PRINCIPALS' ATTITUDES TOWARD INNOVATION WITH PRINCIPALS GROUPED ACCORDING TO THEIR COSMOPOLITENESS

(N = 129)

Group according to Cosmopoliteness score	N	Mean attitude score of principals	standard deviation
Less than 16	17	48.23	7.44
16 - 19	44	53.07	6.70
20 - 23	39	58.74	5.68
More than 23	29	64.76	5.26

d.f. = 125

F = 32.17

P = 0.000

TABLE XII

NEWMAN-KEULS COMPARISON OF MEANS OF PRINCIPALS' ATTITUDE SCORES WITH PRINCIPALS GROUPED ACCORDING TO THEIR COSMOPOLITENESS

(N = 129)

	More than 23	20-23	16-19	Less than 16
Less than 16	* *	* *	* *	
16-19	* *	* *		
20-23	* *			
More than 23				

* * significant at the 0.01 level

TABLE XIII

ANALYSIS OF VARIANCE OF PRINCIPALS' ATTITUDES TOWARD INNOVATION WITH PRINCIPALS GROUPED ACCORDING TO THEIR AGE

(N = 129)

Group	N	Mean attitude score of principals	standard deviation
Under 41 years	10	66.40	9.07
41-45 years	13	58.76	7.23
46-50 years	20	59.35	7.60
51-55 years	30	54.70	7.69
Over 55 years	50	54.78	7.22

d.f. = 124

F = 6.15

P = 0.000

youngest group of principals and the other four age groups (Table XIV). The differences between the means of the other four age groups were not significant, although there was a general downward trend in the mean attitude scores as age increased.

Hypothesis three was therefore accepted.

Discussion. The findings of the present research are consistent with the findings of most of the studies reported in Chapter III. One may conclude from the present findings that the younger a principal is, the more likely he is to hold a receptive attitude toward innovation.

However, the relationship between age and attitudes toward innovation was not linear; the two oldest age groups had mean attitude scores which were almost identical, indicating that age ceased to be a discriminating predictor of attitudes toward innovation for principals over the age of fifty years.

Testing hypothesis four, that attitudes toward innovation of high school principals are associated with mental rigidity.

When principals were grouped according to their scores on the modified Fx Scale, a significant overall F ratio was obtained for their attitude toward innovation scores (Table XV).

A Newman-Keuls comparison of ordered means revealed that significant differences existed between each pair of means, except those of the two groups obtaining the highest mean scores on the scale (Table XVI).

Hypothesis four was therefore accepted.

TABLE XIV

NEWMAN-KEULS COMPARISON OF MEANS OF PRINCIPALS' ATTITUDE SCORES WITH PRINCIPALS GROUPED ACCORDING TO THEIR AGE

(N = 129)

	Under 41 Years	46-50 Years	41-45 Years	Over 55 Years	51-55 Years
51-55 years	* *	-	-	-	
Over 55 years	* *	-	-		
41-45 years	*	-			
46-50 years	*				
Under 41 years					

* * significant at the 0.01 level.

* significant at the 0.05 level.

TABLE XV

ANALAYSIS OF VARIANCE OF PRINCIPALS' ATTITUDES TOWARD INNOVATION WITH PRINCIPALS GROUPS ACCORDING TO THEIR MENTAL RIGIDITY

Group according to scores on modified Fx Scale	N	Mean attitude score of principals	standard deviation
Less than 9 (rigid)	22	48.18	6.44
9 - 11	43	53.53	6.65
12 - 14	44	61.39	5.56
More than 14 (flexible)	20	63.05	8.27

d.f. = 125

F = 31.51

P = 0.000

TABLE XVI

NEWMAN-KEULS COMPARISON OF MEANS OF PRINCIPALS' ATTITUDE SCORES WITH PRINCIPALS GROUPED ACCORDING TO THEIR MENTAL RIGIDITY

(N = 129)

	More than 14 (flexible)	12-14	9-11	Less than 9 (rigid)
Less than 9 (rigid)	* *	* *	*	
9 - 11	* *	* *		
12 - 14	-			
More than 14 (flexible)				

* * significant at the 0.01 level

* significant at the 0.05 level

Discussion. These findings support those of the studies reported in Chapter III. As mental rigidity was defined as "the individual's resistance to change of single beliefs, or sets of habits," (supra, p. 4) it was not surprising that principals who were mentally rigid obtained low scores on the Principal Opinion Questionnaire; persons who resist change of beliefs or sets of habits may be expected to resist the introduction of new ideas and practices which threaten to change the status quo.

Testing hypothesis five, that attitudes toward innovation of high school principals are associated with the amount of formal education undertaken.

It was noted earlier in this chapter that most principals in the population had four or more years of tertiary education and that this predictor did not discriminate as effectively as was anticipated. However, principals were placed in two groups; the first included thirty-nine principals with fewer than four years tertiary education, and the second included ninety principals with four or more years of tertiary education. The mean attitude toward innovation score for the first group was 54.95, while the mean for the second group was 57.57. Although the difference between these two means was in the expected direction, a t-test revealed that the difference was not significant at the 0.05 level.

Hypothesis five was therefore rejected.

Discussion. It was concluded in Chapter III that the evidence regarding a relationship between the amount of formal education and innovativeness was conflicting. This study did not support the theory of a

relationship between these two variables.

As Rogers suggests that knowledge of the technology relevant to the adopter's field is one aspect of mental ability (supra, p. 27), it may not be a question of how much formal education has been undertaken, but one of what kind of education. Courses related to educational technology, methodology and administration, for example, may be more relevant to the formation of attitudes toward innovation then training in subject content.

Testing hypothesis six, that attitudes toward innovation of high school principals are associated with recency of formal education.

In Section II of this chapter it was observed that most principals fell within the third category for recency of formal education; that is, ninety-four of the 129 principals had undertaken no formal education within the last ten years (Table IV). The first two categories contained only nine and twenty-six principals respectively. Because the number in the first category was small, it was decided to combine categories one and two and compare the mean attitude toward innovation score of this combined group with the mean score of the ninety-four principals who had undertaken no formal education within the last ten years.

The mean attitude score of the first group, comprising the thirty-five principals who had undertaken formal study within the last ten years was 60.26; the mean score of the second group was 55.48. A t-test indicated that the difference between these two means was significant at the 0.01 level (Table XVII).

TABLE XVII

COMPARISON OF MEANS OF ATTITUDE TOWARD INNOVATION SCORES OF PRINCIPALS GROUPED ACCORDING TO THE RECENCY OF THEIR FORMAL EDUCATION

(N = 129)

Group according to the recency of formal education	N	Mean	Standard deviation	t value
1. Formal education within last 10 years	35	60.26	7.91	2.99*
2. No formal education within last 10 years	94	55.48	8.02	

*Significant at the 0.01 level.

Hypothesis six was therefore accepted.

Discussion. This finding supports the conclusion of Marion reported in Chapter III, that it is the recency rather than the amount of formal education that is associated with innovativeness. However, the fact that recency of education and age were significantly related (Table XXIII) suggests that the association between recency of education and attitudes toward innovation may be a function of age. In the school system studied very few principals in the older age groups had undertaken recent formal education, and it was the two oldest age groups which had the lowest mean attitude scores (Table XIII).

Testing hypothesis seven, that attitudes toward innovation of high school principals are associated with the length of time principals have been in their present positions.

Principals were grouped in three categories according to the number of years they had spent in their present positions. Analysis of variance of the attitude scores of these three groups gave a significant overall F ratio of 3.54 (Table XVIII).

A Newman-Keuls test revealed that the mean attitude score of the group of principals with the shortest length of tenure was significantly higher than the mean scores of the other two groups (Table XIX).

Hypothesis seven was therefore accepted.

Discussion. This finding supports the view of Griffiths reported in Chapter III, that innovativeness is negatively related to the length of tenure of the chief administrator. The data suggests that principals are most receptive to new ideas in the first two years of their tenure in a position.

TABLE XVIII

ANALYSIS OF VARIANCE OF PRINCIPALS' ATTITUDES TOWARD INNOVATION WITH PRINCIPALS GROUPED ACCORDING TO THEIR LENGTH OF TENURE IN THEIR PRESENT POSITIONS

(N = 129)

Group according to length of tenure	N	Mean attitude score of principals	Standard deviation
Less than 2 years	24	60.54	6.54
2 - 5 years	71	56.39	8.88
More than 5 years	34	54.91	7.10

d.f. = 126

F = 3.54

P = 0.032

TABLE XIX

NEWMAN-KEULS COMPARISON OF MEANS OF PRINCIPALS' ATTITUDE SCORES WITH PRINCIPALS GROUPED ACCORDING TO THEIR LENGTH OF TENURE IN THEIR PRESENT POSITIONS

(N = 129)

	Less than 2 years	2 - 5 years	More than 5 years
More than 5 years	*	-	
2 - 5 years	*		
Less than 2 years			

*Significant at the 0.05 level.

Testing hypothesis eight, that attitudes toward innovation of high school principals are associated with the length of experience as a principal.

Principals were placed in three groups according to their length of experience as principals. The first group had less than five years experience, the second group five to ten years experience, and the third group had more than ten years experience.

Analysis of variance of the attitude scores of these three groups gave an F ratio of 1.40 which was not significant at the 0.05 level.

Hypothesis eight was therefore rejected.

Discussion. This finding was surprising, as length of experience as a principal in the school system studied is closely associated with age, a predictor which was significantly associated with attitudes toward innovation. Although not significant, the trend was in the expected direction; the group of principals with less than five years experience had a mean attitude score of 58.81; the group with five to ten years experience had a mean attitude score of 56.83; the group with more than ten years experience had a mean score of 55.42.

Testing hypothesis nine, that attitudes toward innovation of high school principals are associated with the amount of time principals are engaged in classroom teaching.

Principals were placed in three categories on the basis of the amount of time they were engaged in classroom teaching. Analysis of variance of the mean attitude scores of these three groups gave an F ratio of 0.95 which was not significant at the 0.05 level.

Hypothesis nine was therefore rejected.

Testing hypothesis ten, that attitudes toward innovation of high school principals are associated with the sources from which information about innovations is derived.

Subproblem 2 (i), which was stated in Chapter I, related to the sources from which principals obtained their information about innovations. Table XX indicates the frequency of the ranks assigned to the seven suggested information sources. In order to determine the overall ranking assigned to these information sources, weights were assigned to the frequencies. For example, a weighting of one was assigned to a ranking of one, a weighting of two to a ranking of two, and so on to a weighting of seven to a ranking of seven. The result is shown in Table XXI; the information source which received the highest overall ranking was professional meetings, followed in order by other principals, professional journals, staff, the central office of the Department of Education, visiting inspectors and the Victorian Universities and Schools Examinations Board.

Hypothesis ten suggested that attitudes toward innovation were associated with the sources from which information about innovations was obtained. However, analysis of variance of principals' attitude scores grouped according to their first and second information sources failed to give significant F ratios.

Hypothesis ten was therefore rejected.

IV. MULTIPLE REGRESSION ANALYSIS

Multiple regression analysis was carried out to determine which of the six significant predictors best predicted attitudes toward innovation,

TABLE XX

FREQUENCY DISTRIBUTION OF PRINCIPALS ACCORDING TO RANKS ASSIGNED TO SOURCES OF INFORMATION ABOUT INNOVATIONS

(N = 129)

Rank assigned by principals	Sources of information						
	Principal's staff	Visiting inspectors	Meetings	Journals	Other principals	Central Office	V.U.S.E.B.*
1	12	3	44	36	16	17	1
2	21	5	30	17	37	15	4
3	16	16	10	24	38	18	7
4	34	17	17	11	14	24	12
5	20	37	8	10	16	22	16
6	15	31	14	12	6	26	25
7	11	20	6	19	2	7	64

*The Victorian Universities and Schools Examinations Board

TABLE XXI

WEIGHTED FREQUENCY DISTRIBUTION OF PRINCIPALS ACCORDING TO RANKS ASSIGNED TO SOURCES OF INFORMATION ABOUT INNOVATIONS

(N = 129)

Rank assigned by principals	Sources of information						
	Principal's staff	Visiting Inspectors	Meetings	Journals	Other principals	Central office	V.U.S.E.B.*
1	12	3	44	36	16	17	1
2	42	10	60	34	74	30	8
3	48	48	30	72	114	54	21
4	136	68	68	44	56	96	48
5	100	185	40	50	80	110	80
6	90	186	84	72	36	156	150
7	77	140	42	133	14	49	448
Total of weighted ranks	505	640	368	441	390	512	756
Weighted ranking of information sources	4	6	1	3	2	5	7

*The Victorian Universities and Schools Examinations Board.

and accounted for most of the variance in the criterion measure. The results of the regression analysis are shown in Table XXIII. The best predictor of attitudes toward innovation was cosmopoliteness, followed in order by mental rigidity, length of tenure in present position, recency of formal education, age, and innovativeness of the principal's school. The first two predictors accounted for 56.81 per cent of the variance; the other four predictors accounted for only 1.41 per cent of the variance not accounted for by cosmopoliteness and mental rigidity. The six predictors together accounted for 58.22 per cent of the variance.

The fact that cosmopoliteness accounted for 48.49 per cent of the variance may be explained by the relationship between it and other predictors (Table XXII). All but one of the other five predictors correlated with cosmopoliteness at the 0.01 level; thus some of the variance which they accounted for was absorbed by cosmopoliteness.

V. SUMMARY OF CHAPTER V

This chapter was concerned mainly with testing the hypotheses established in Chapter III. Analysis of variance of principals' attitude toward innovation scores gave significant F ratios when principals were grouped according to the innovativeness of their schools, cosmopoliteness, age, mental rigidity, and length of tenure in their present positions. A t-test revealed a significant difference between the mean attitude scores of the principals who had undertaken formal education recently and those who had not. Newman-Keuls comparisons of ordered means were used to determine where significant differences existed between the groups.

TABLE XXII

RESULTS OF MULTIPLE REGRESSION ANALYSIS USING SIX PREDICTORS WITH ATTITUDES TOWARD INNOVATION AS THE CRITERION MEASURE

Name of predictor	Order of entry in regression analysis	Computed R	Cumulative percentage of variance in criterion measure accounted for
Cosmopoliteness	1	.696**	48.49
Mental rigidity	2	.612**	56.81
Tenure in present position	3	-.216*	57.91
Recency of formal education	4	-.191*	58.21
Age	5	-.367**	58.22
Innovativeness of school	6	.405**	58.22

** significant at the 0.01 level

* significant at the 0.05 level

TABLE XXIII

INTERCORRELATION MATRIX OF THE AGES, LENGTH OF TENURE, RECENCY OF EDUCATION, INNOVATIVENESS OF SCHOOLS, COSMOPOLITENESS, MENTAL RIGIDITY AND ATTITUDES TOWARD INNOVATION OF PRINCIPALS

(N = 129)

Variable	1	2	3	4	5	6	7
1. Age	1.00	.432**	.318**	-.218**	-.416**	-.318**	-.367**
2. Tenure in present position		1.00	.134	-.132	-.067	.235**	-.216*
3. Recency of education			1.00	-.145	-.358**	.120	-.191*
4. Innovativeness of school				1.00	.462**	.460**	.405**
5. Cosmopoliteness					1.00	.527**	.696**
6. Mental rigidity						1.00	.612**
7. Attitude toward innovation							1.00

* significant at the 0.05 level

** significant at the 0.01 level

On the basis of this analysis, hypotheses one, two, three, four, six and seven were accepted. It was concluded that the amount of formal education, experience as a principal, the extent to which the principal was engaged in classroom teaching and the sources from which he obtained information about innovations were not associated with the principal's attitude toward innovation.

Multiple regression analysis revealed that the six predictors which were significantly associated with the criterion measure accounted for 58.22 per cent of the variance. The best predictors of attitudes toward innovation were cosmopoliteness and mental rigidity, followed in order by length of tenure in present position, recency of formal education, age, and the innovativeness of the principal's school.

CHAPTER VI

SUMMARY, FINDINGS, AND IMPLICATIONS OF THE STUDY

I. SUMMARY AND FINDINGS

The main purpose of this study was to determine whether a number of personal, experience and academic characteristics of high school principals were associated with attitudes toward innovation. The major sources from which principals derived their information about innovations were also investigated.

The research differed from other innovation studies in two important respects. First, it was carried out in a highly centralized school system characterized by the absence of local control. Second, the criterion measure was principals' attitudes toward innovation, rather than innovativeness defined in terms of the number of innovations and the extent of their adoption.

The population was comprised of all principals of government high schools which provided instruction from grade seven to twelve. The population was delimited to exclude those principals with fewer than two years experience as principals. One hundred and twenty nine principals, comprising seventy-six per cent of the population, participated in the study.

Ten research hypotheses were developed on the basis of Rogers' paradigm and the findings of related research which pointed to relationships between the criterion measure and the ten predictors. The ten hypotheses postulated that high school principals' attitudes toward innovation were associated with the innovativeness of their schools,

cosmopoliteness, age, mental rigidity, length of experience as principals, length of tenure in their present positions, the amount and recency of their formal education, the extent to which they were engaged in classroom teaching, and the sources from which they derived their information about innovation.

Analysis of variance indicated that six of the predictors were significantly associated with attitudes toward innovation. These were cosmopoliteness, age, mental rigidity, length of tenure in present position, recency of formal education, and the innovativeness of the principal's school.

Newman-Keuls comparisons of means revealed that (1) the youngest group of principals had a mean attitude score significantly higher than each of the other age groups, (2) mean attitude scores increased significantly as mean cosmopoliteness scores increased, (3) mean attitude scores decreased significantly as mental rigidity increased, (4) the mean attitude score of principals of high adopter schools was significantly higher than the mean attitude scores of principals of medium and low adopter schools and (5) principals who had been in their present positions for the shortest time had a mean attitude score significantly higher than the two groups of principals who had spent a longer period in their present positions.

Multiple regression analysis showed that six predictors which were significantly associated with the criterion measure accounted for 58.22 per cent of the variance. The best predictor of attitudes toward innovation was cosmopoliteness which accounted for 48.49 per cent of

the variance, followed in order by mental rigidity, length of tenure in present position, recency of formal education, age, and the innovativeness of the principal's school.

In order of their importance to principals, the sources from which information about innovations was derived were professional meetings, other principals, professional journals, staff, the central office, visiting inspectors, and the Victorian Universities and Schools Examinations Board.

II. IMPLICATIONS

Implications for Administrators

The findings of this study suggest that the principal who holds a receptive attitude toward innovation is likely to be young, cosmopolite, mentally flexible, recently appointed to his position, and to have undertaken formal study comparatively recently. Throughout the study no value judgement has been made about attitudes toward innovation; whether a receptive attitude toward innovation is good or bad depends upon the innovation under consideration. However, the implication of this research is that if it is desired to implement change, the school principals likely to be receptive to it are those with the personal and experience characteristics mentioned above.

A second implication relates to the instrument used for determining principals' attitudes toward innovation. The fact that this study has shown a relationship between attitudes toward innovation and six variables which have been related to innovativeness in other studies, suggests that

the instrument developed by Wiens is a useful and convenient means of determining the innovativeness of principals.

Implications for Further Research

The present research focused upon the attitudes toward innovation of high school principals, and placed most emphasis upon personal, academic and experience variables which were associated with these attitudes. Further studies might be directed toward investigating the effect upon principals' attitudes of environmental factors, such as school size, staff turnover, the system's norms on innovativeness, and financial constraints and incentives. Such research might be most fruitful if comparisons were drawn between the government, private and catholic school systems, for situational factors may reasonably be expected to vary between these three different systems.

The present research made no attempt to investigate the relationship between principals' attitudes toward innovation and the perceived characteristics of innovations. Future research might investigate the effects upon principals' attitudes of the perceived characteristics of innovations, such as their relative advantage, complexity, divisibility, and compatibility with existing practices.

Finally, the present study was concerned with one figure in the change process--the principal. It is suggested that all educators, including teachers, exert some influence in the process of educational change, and that further research might be directed toward investigating the attitudes of teachers toward innovation.

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APPENDIX A

QUESTIONNAIRES SUBMITTED TO PRINCIPALS

Questionnaire for Principals of Victorian High Schools

PART 1

Please check one correct alternative for items 1 to 6 below.

1. Age of principal.

____ under 35 years	____ 46 - 50 years
____ 35 - 40 years	____ 51 - 55 years
____ 41 - 45 years	____ over 56 years

2. Length of experience as a principal. (excluding this year.)

____ less than 5 years; ____ 5 - 10 years; ____ more than 10 years

3. Length of tenure in present position. (excluding this year.)

____ less than 2 years; ____ 2 - 5 years; ____ over 5 years

4. Amount of tertiary education to the nearest full year. (including senior technical college courses, teacher training.)

____ less than 3 years	____ 4 years
____ 3 years	____ 5 years or more

5. Most recent formal study undertaken. (e.g. a B.Ed. subject)

____ within the last 3 years; ____ 4 to 10 years ago;

____ more than 10 years ago

6. Amount of time principal is engaged in classroom teaching.

____ none; ____ one class per day; ____ more than two classes per day

PART 2

Please place a check against the appropriate statements 7 to 10 below.

7. Size of school

____ less than 300 students	____ 600 to 900 students
____ 300 to 600 students	____ more than 900 students

(over)

8. Are any of the following in use in your school?

____ overhead projector

____ television

____ programmed instructional materials

____ language laboratory

____ reading improvement program

____ team teaching

____ teacher aides to assist with the correction of written assignments

9. Are any of the following subjects taught in your school?

____ School Leaving Asian History

____ foreign language other than French, German, or Latin

Any other subjects from Forms 1 to 6 not listed in the V.U.S.E.B. Handbook (please list)

_____ _____

_____ _____

_____ _____

_____ _____

10. As 1967 was the last year in which the School Intermediate Examination was conducted, have you already implemented, or are you planning to implement within the next 12 months, any of the following changes: (tick appropriate space)

____ abolition of formal examinations in any of the first four years of the secondary program

____ significant changes in the content of existing subjects

____ redistribution of time allotted to various subjects

____ modification of the grouping of students

____ changes in the grouping of subjects e.g. core plus electives

(over)

Any other changes in school organization, or curriculum which you regard as significant

_____

_____

_____

PART 3

Below are listed 7 sources from which principals might be expected to derive information about new educational practices. In the brackets provided please rank these sources from one (1) to seven (7) according to their value to you as sources of information.

( ) your staff

( ) visiting inspectors

( ) professional meetings

( ) professional journals

( ) other principals

( ) the central office of the Department of Education

( ) V.U.S.E.B.

PART 4

This section of the questionnaire consists of a number of statements of opinions with respect to change in education. Please indicate your agreement or disagreement with each of the statements by circling the appropriate symbol to the right of the statements. The symbols have these meanings:

SA -- strongly agree U -- undecided D -- disagree
A -- agree SD -- strongly disagree

1.	Most schools are not changing rapidly enough to ensure that pupils will receive an education which prepares them adequately for the modern world.	SA	A	U	D	SD

(over)

2. An experienced teacher seldom finds it necessary to make any important changes in his methods from one year to the next.	SA	A	U	D	SD
3. Many of the changes which have been introduced into education recently have tended to complicate matters unnecessarily.	SA	A	U	D	SD
4. A major characteristic of a professional teacher is that he likes to try new ideas in his teaching.	SA	A	U	D	SD
5. In general, experiments in education should be made only when there is evidence that similar experiments have been successful elsewhere.	SA	A	U	D	SD
6. The trouble with most innovations in education is that they sound fine in theory but do not work out too well in practice.	SA	A	U	D	SD
7. In recent years, teachers have sometimes been forced to go along with changes which were of very little benefit to their pupils.	SA	A	U	D	SD
8. In a well-organized school it should not be necessary to review major policies more than once every two or three years.	SA	A	U	D	SD
9. Even the best curriculum needs frequent revision.	SA	A	U	D	SD
10. Teachers should not be expected to adopt new methods when the methods which they are presently using are working well for them.	SA	A	U	D	SD
11. During the last few years there has been a tendency for people to exaggerate the need for change in schools.	SA	A	U	D	SD
12. Experimental changes should only be attempted in a school when there is evidence that present methods are inadequate.	SA	A	U	D	SD

(over)

13. It is desirable that teaching practices should change over a period of time.	SA	A	U	D	SD
14. It is better for a teacher to use methods which he has found to be useful than to take a chance on methods whose usefulness has not been established.	SA	A	U	D	SD
15. Schools with firmly established traditions are more likely to be successful than are shcools which do not have such traditions.	SA	A	U	D	SD
16. For the long-term welfare of the school it is probably better to have teachers who are willing to follow established policies than to have teachers who constantly challenge these policies.	SA	A	U	D	SD

PART 5

1. Which magazines do you read regularly? Exclude professional journals. Please write the title of the magazines (e.g. Life, Time, Walkabout.)

   0. None

   1. _____ 5. _____

   2. _____ 6. _____

   3. _____ Others: _____

   4. _____ _____

2. Which do you <u>usually</u> read first in the daily press? (tick the appropriate space.)

   ____ local news; ____ international news

3. In which civic and/or social and/or political organizations are you an active member? Leave out strictly educational organizations, but include organizations such as Rotary, Lions, etc.

   0. None

   1. _____ 5. _____

(over)

2. _____ 6. _____

3. _____ Others: _____

4. _____ _____

PLEASE CIRCLE YES OR NO

4. YES NO Are you a member of the Australian College of Education?

5. Would you accept a position with another educational organization, if it meant a distinct improvement in your professional career:

YES NO (i) within Victoria

YES NO (ii) Interstate

YES NO (iii) Overseas

6. YES NO Have you ever taught outside Victoria?

7. YES NO Have you travelled interstate within the last year?

8. YES NO Have you travelled outside Australia during the last 5 years?

9. YES NO Are you planning to travel abroad within the next 5 years?

10. YES NO Would you say that you get most of your professional stimulation from Victorian Education Department personnel such as other principals, inspectors and your staff?

11. With how many persons <u>not employed by the Victorian Department of Education</u> have you discussed educational practices over the last 12 months? (exclude your immediate family and discussions of your students' education with their parents.)

<u>Circle</u> the appropriate number:

none	three	six	nine
one	four	seven	ten
two	five	eight	eleven

twelve or more

12. Do you usually feel more satisfied after a teachers' meeting which features: (check ONE of the following blanks)

____ an outstanding speaker from Victoria

____ an outstanding speaker from interstate or overseas

(over)

13. Some people have said that the teaching profession is composed of two types of persons: (Indicate by a single check in ONE of the four blanks which type of person you are like.)

	I am a little like this type of person	I am very much like this type of person
Persons who are more interested in local problems	☐	☐
Persons who are more interested in problems everywhere	☐	☐

PART 6

Directions: Choose TRUE (T) or FLASE (F) as the better answer for each statement and circle the appropriate letter, i.e., T or F.

T F 1. I am often the last one to give up trying to do a thing.

T F 2. There is usually only one best way to solve most problems.

T F 3. I prefer work that requires a great deal of attention to detail.

T F 4. I often become so wrapped up in something I am doing that I find it difficult to turn my attention to other matters.

T F 5. I dislike to change my plans in the midst of an undertaking.

T F 6. I never miss going to church.

T F 7. I usually maintain my own opinions even though many other people may have a different point of view.

T F 8. I find it easy to stick to a certain schedule, once I have started it.

T F 9. I do not enjoy having to adapt myself to new and unusual situations.

T F 10. I prefer to stop and think before I act even on trifling matters.

T F 11. I try to follow a program of life based on duty.

(over)

T F 12. I usually find that my own way of attacking a problem is best, even though it doesn't always seem to work in the beginning.

T F 13. I am a methodical person in whatever I do.

T F 14. I think it is usually wise to do things in a conventional way.

T F 15. I always finish tasks I start, even if they are not very important.

T F 16. I often find myself thinking of the same tunes or phrases for days at a time.

T F 17. I have a work and study schedule which I follow carefully.

T F 18. I usually check more than once to be sure that I have locked a door, put out the light, or something of the sort.

T F 19. I have never done anything dangerous for the thrill of it.

T F 20. I believe that promptness is a very important personality characteristic.

T F 21. I am always careful about my manner of dress.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

APPENDIX B

CORRESPONDENCE

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA

March 13, 1968

I am writing to request your cooperation and assistance in completing a research project which is part of my graduate studies program at the University of Alberta. At present I am on leave of absence from my position with the V.U.S.E.B.

The research is related to the role of the school principal in the process of educational change and innovation. Although the opportunity exists to carry out research in Canada, I feel that a study in the Victorian setting will yield information of considerable value to Australian educators. This view is shared by Mr. R. A. Reed, the Director of Secondary Education, who has given his approval and support for the proposed research.

I am therefore asking if you would be good enough to complete the enclosed questionnaire and return it to me in the self-addressed envelope provided.

It is realized that some of the information sought may be regarded as personal. You are assured that the way the data will be handled will ensure complete anonymity. Individual replies will be held in the strictest confidence.

As the value of the research and the completion of my studies is dependent upon a maximum return of the questionnaires, your early response would be greatly appreciated.

Thank you for your cooperation and contribution.

Yours sincerely,

Frank Coulter

FC/ed
Encl.